# Spatio-Temporal Project

All codes used in our paper "Predicting the patterns of spatio-temporal signal propagation in complex networks" are stored here.

There are four folders inside the folder named 'Codes Spatio-Temporal' : 'Fig1', 'Model', 'Networks', 'Plot'.

All the models (R\_1, N, R\_2, P, M, E) and codes for generating the coupled equations as well as numerical solutions are in the folder 'Model'. All the networks (Total 15+1) are in the folder 'Networks'. All the plot codes for the Fig 3g-l, 4a-f, 6i-k are in the folder 'Plot'.

Start with the code SpreadingDynamics. Run the code and chose the network as well as the models as per your choice.

**Please note that** a) if you use the model R\_1 or N, uncomment the line 'Blue\_P\_T\_vsT\_Tau\_vs\_S\_TvsL\_TvsUniv\_dist' in the script ‘SpreadingDynamics’.

b) If you use the model P, uncomment the line 'Red\_PD\_P\_T\_vsT\_Tau\_vs\_S\_TvsL\_TvsUniv\_dist' in the script ‘SpreadingDynamics’.

c) If you use the model R\_2, uncomment the line Red\_PD\_P\_T\_vsT\_Tau\_vs\_S\_TvsL\_TvsUniv\_dist' in the script ‘SpreadingDynamics’.

d) If you use the model R\_2, uncomment the line 'Red\_R2\_P\_T\_vsT\_Tau\_vs\_S\_TvsL\_TvsUniv\_dist' in the script SpreadingDynamics.

e) For M and E uncomment Green\_P\_T\_vsT\_Tau\_vs\_S\_TvsL\_TvsUniv\_dist.

For the Fig1 go to the folder 'Fig1' and run the script 'plot\_ts\_red', 'plot\_ts\_blue', 'plot\_ts\_green' for R\_2, R\_1 and R\_3 respectively.

I suggest to start with a small network: 'A\_300\_gamma3' (Network Number 16)

Hope you will enjoy to run the codes.